

DETAILED ACTION

This office action replaces the office action mailed on December 18, 2009.

Response to Arguments

1. Applicant's arguments filed 08/31/2009 have been fully considered but they are not persuasive. The following reasons are why:
2. Applicants admit on the record that Morris (WO02/33393) "does disclose, by structure and by name a variety of sensor materials to be used for gas analysis." Applicants argue 1). Morris does not however, teach or suggest the specific groups or materials recited in Claims 21 or 22; 2). None of the specific groups of materials recited in 21 or 22 is identically described in Morris as a whole group; 3). There is no discussion in Morris of which materials might possibly be grouped with which other materials for use to make a gas analyzer device; 4). Morris does not give the artisan sufficient guidance about the desirability of grouping any particular materials with certain others to justify classifying Morris as a reference that presents the artisan with a finite number of solutions from which to choose when constructing a group of materials to use in a gas analyzer device (See Remarks filed on 08/31/2009; Page 12 of 13)."
3. The Examiner respectfully disagrees.
4. First and foremost: The arguments of counsel cannot take place of evidence in the record (especially, since the prior art reference relied upon by the Examiner has a common inventor with the instant application). See MPEP 716.01(c) II.

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5. Second, to address Applicants' arguments, Morris does indeed disclose the alleged invention.

6. Morris discloses a gas analyzer device (See Abstract; and Page 1 lines 8-15); wherein the gas analyzer device comprises a sensor array (See Figure 1, Figure 3, Page 4 lines 4-15; See Page 12 lines 13-20; Page 14 line 32 to Page 18 line 37; and Page 31 line 30 to Page 31 line 10), and wherein the sensor array may contain a group of (3, 4, 5, 6, 8, 10, 12, **or other desirable numbers of gas-sensing materials** (selected from the chemo/electro-active materials in the Morris reference)).

7. The Examiner interprets these sections as giving sufficient and adequate knowledge to allow one of ordinary skill in the art, the knowledge and guidance of how to assemble applicants' alleged invention. Applicants' arguments are simply not supported by any scientific and factual evidence.

8. Applicant's arguments, see Remarks, filed 08/31/2009, with respect to the rejection to claims under 35 U.S.C. 112 2nd, have been fully considered and are persuasive. The rejection of 112 2nd, has been withdrawn.

Response to Amendment

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 20-22, 25-27, 29-33, & 35-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Morris (WO02/33393).

11. The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

12. Applicants' claims are toward multiple devices.

13. Regarding Claims 20-22, 25-27, 29-33, & 35-41, Morris discloses the apparatus for analyzing a multi- component gas mixture, comprising:

14. A). An array of four or six or more chemo/electro-active materials (See Figure 1 and Page 11; lines 29-33), each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials; wherein at least four or six of the chemo/electro-active materials in the array comprise one of the following groups of four materials:

a. 1). The group of chemo/electro-active materials comprising, respectively $\text{Ga}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, and SnO ,

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- b. 2). The group of chemo/electro-active materials comprising, respectively $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, and ZnO ,
- c. 3). The group of chemo/electro-active materials comprising, respectively $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, and ZnO ,
- d. 4). The group of chemo/electro-active materials comprising, respectively, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$, and ZnO ,
- e. 5). The group of chemo/electro-active materials comprising, respectively $\text{Al}_a\text{Ni}_b\text{O}_x$, $\text{Cr}_a\text{Ti}_b\text{O}_x$, $\text{Mn}_a\text{Ti}_b\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$,
- f. 6). The group of chemo/electro-active materials comprising, respectively $\text{Ga}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$,
- g. 7). The group of chemo/electro-active materials comprising, respectively $\text{Ga}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, SnO_2 , $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$,
- h. 8). The group of chemo/electro-active materials comprising, respectively $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$, and ZnO
- i. wherein a, b, and c are each independently about 0.0005 to about: 1: and wherein x is a number sufficient so that the oxygen present: balances the charges of the other elements in the chemo/electro-active material (See Page 14 line 32 to Page 17 line 37; the chemo/electro-active materials are listed);
- j. B) Means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture (See Page 4 lines 26-28 & Page 29; IR Thermographic Measurements & Claim 1): and
- k. C). Means for obtaining from no information about the gas mixture other than the individual electrical response of the chemo/electro-active (See Page 4 lines 29-36 Items C or D & Page 29; IR Thermographic Measurements & Claim 1).

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15. Additional Disclosures Included: Claim 22: Wherein a chemo/electro-active material further comprises a (i) one or more additives to promote adhesion of a chemo/electro-active material to a substrate, or to alter the conductance, resistance or selectivity of a chemo/electro-active material; or that catalyze the oxidation of a gas of interest or promote selectivity for a particular analyte gas; and/or (ii) one or more dopants that convert an n semiconductor to a p semiconductor or vice versa (See Page 18 lines 1-29); Claim 25: An apparatus according to Claim 20 or 21 wherein component c). determines the presence or concentration of a nitrogen oxide and a hydrocarbon in the multi-component gas mixture (See Page 12; lines 13-30; Page 20 line 27, & Page 27 lines 16-26); Claim 26: An apparatus according to Claim 20 or 21 wherein component c). obtains a determination from gases in the gas mixture are not separated (See Rejection to Claim 25 & Page 20 lines 19-22); Claim 27: An apparatus according to Claim 20 or 21 wherein component b) determines electrical responses of the chemo/electro-active materials are determined upon exposure to only the multi-component gas mixture (See Page 4 lines 26-29 & Page 45 lines 1-4); Claim 29: An apparatus according to Claim 20 or 21 wherein the multi-component gas mixture is emitted by a process, or is a product of a chemical reaction that is transmitted to a device, and wherein the apparatus further comprises means for utilizing the electrical responses for controlling the process or operation of the device (See Page 11 lines 9-24); Claim 30: A vehicle for transportation comprising an apparatus according to Claim 20 or 21 (See Page 11 lines 9-24); Claim 31: Equipment for construction, maintenance or industrial operations comprising an apparatus according to Claim 20 or 21 (See Page

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11 lines 9-24); Claim 32: An apparatus according to Claim 20 or 21 further comprising heating means for separately heating each chemo/electro-active material (See Page 22 lines 24-28); Claim 33: An apparatus according to Claim 20 or 21 wherein each chemo/electro-active material is heated to the same temperature (See Page 22 lines 24-28); Claim 35: An apparatus according to Claim 20 or 21 wherein the chemo/electro-active materials are on a substrate made from a material selected from the group consisting of silicon, silicon carbide, silicon nitride, and alumina with a resistive dopant (See Page 14; lines 20-25); Claim 36: An apparatus according to Claim 20 or 21 wherein component c). obtains a determination as to the presence of concentration in the gas mixture of an organo-phosphorus gas (See Rejections to claim 1; the device is capable of being used in this manner); Claim 37: An apparatus according to Claim 20 or 21 which is characterized by a size such that it may be held in the human hand (See Page 27, Array Chip Fabrication); Claim 38: A ventilation system for a car or building comprising an apparatus according to both Claims 20 & 21 (See Page 11 lines 9-24); Claim 39: An apparatus according to Claim 20 or 21 wherein component c). determines the presence or concentration of a nitrogen oxide in the multi-component gas mixture (See above rejection to nitrogen oxide and See Page 12 lines 21-29 & Page 27 lines 16-26); Claim 40: An apparatus according to Claim 20 or 21 wherein component c). determines the presence or concentration of a hydrocarbon in the multi-component gas mixture (See above rejection to nitrogen oxide and See Page 12 lines 21-29 and Page 27 lines 16-26); and Claim 41: An apparatus according to Claim 20 or 21 wherein component c). determines the presence or concentration of ammonia in the multi-

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component gas mixture (See above rejection to nitrogen oxide and Page 12 lines 21-29 and See Page 27 lines 16-26).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

18. Determining the scope and contents of the prior art.
19. Ascertaining the differences between the prior art and the claims at issue.
20. Resolving the level of ordinary skill in the pertinent art.
21. Considering objective evidence present in the application indicating obviousness or nonobviousness.
22. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Clifford.
23. Applicant's claim is toward a device.
24. Regarding Claim 34, Morris discloses the apparatus according to Claim 20 or 21, except wherein one or more chemo/electro-active materials has a different temperature than the other chemo/electro-active materials. Clifford discloses a gas sensor array in which separate heaters may be employed (See Column 9 lines 14-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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modify the heater of Morris with the separate heaters for one or more chem/electro-active materials because according to Clifford, individual sensors may share a common heating means, or if different sensor operating temperatures are desired, heating means may be separate (See Column 9 lines 14-22).

Telephonic Inquiries

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

26. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY RAMDHANIE whose telephone number is (571)270-3240. The examiner can normally be reached on Mon-Fri 8-5 (Alt Fri off).

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. R./

/Walter D. Griffin/

Supervisory Patent Examiner, Art Unit 1797